Bruhath Bengaluru Mahanagara Palike

QUALITY ASSURANCE/QUALITY CONTROL REPORT

Office of the Chief Engineer (Quality Assurance/Control) Annexure-05,
BBMP Head Office, Hudson circle Bengalore-001,
Ph.no:08022975541, E-mail ID:qualitycontrol.bbmp@gmail.com

QUALITY ASSURANCE REPORT/QUALITY CONTROL REPORT

SE/QA/PR/ 100 /2022-23, DATE: 13/4/23		
Name of Work	:	Package 02 - Consists of 5 works. "Improvements to Road and Drains at Hegdenagar Western side Balance Cross Roads in ward no 06" Byatarayanapura Sub Division. Estimated cost 1000.00 Lakhs
Job Code	:	007-23-000003
Bill No.	:	**2nd &Part Bill, Rs.1,95,99,000.00 (including GST)**
Name of Agency	:	**M/s Sri Venkateshwara Constructions, Prop. Sri Sambashiva**
Type of Test Performed	:	Bitumen Content and Gradation test as per Table 500.10 & Table 500.17 MoRTH V Revision.
Materials on which Tests Was Performed	:	1. Dense Bituminous Macadam (Grade II) 2. Bituminous Concrete (Grade II)
Officers present during inspection	:	1.Sri. Suresh Devathraj AE – Ward no 06 2. Sri. Nagappa Kamati AEE- Byatarayanapura Sub division 3.Sri. Kiran.B. EE-Quality Assurance
Project Management Consultants/Third Party	:	**Shiprama Consulting Engineers Pvt Ltd.**
Observations	:	➢ Bitumen Content and Gradation Test was conducted by Project Management Consultants at random locations in presence of AE (Ward no 6) and AEE (Byatarayanapura Sub division) along with EE of QA division . ➢ The Bitumen content & Gradation Test were conducted for DBM (Grade II) & BC (Grade-II). The readings and results are recorded by the PMC consultants. ➢ The Bitumen Content & Gradation Test results are tabulated and analysis of test results done by PMC is here by furnished. ➢ The location wise test results are reproduced in the tables shown below.
Test Locations	:	Location 1: 1st Cross Road (W/S Near Water Tank house no-622, W/S Near Elahi Mutton & Chicken Center , W/S Opp Obed Manzil) Location 2: 5th Cross Road (opp to House no # 972 , Western Side House no # 964 Near Water Tank Ward Office)

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Table-01: Bitumen Content and gradation Test Results for 1st Cross Road at random locations
BC- (GRADE-II)

Landmark/Location	W/S Near Water Tank house no-622	W/S Near Elahi Mutton & Chicken Center	W/S Opp. [illegible] Manzil Ward no-06
Description	Trial 1	Trail 2	Trail 3
1.Initial weight of sample (gms) w1	583	575	580
2. Initial weight of filter paper (gms) w2	5	5	5
3. final weight of sample after extraction (gms) w3	552	543	549
4. Final weight of filter paper (gms) w4	6	6	6
5. Weight of finess (gms) w5=(w4-w2)	1.00	1.00	1.00
6. Weight of Bitumen Extracted (gms). w6=w1-w3+w5	32.00	33.00	32.00
7. Bitumen content in % (w6/w1)x100	5.49	5.74	5.52
8.Average		5.58	

SIEVE SIZE mm	Trail 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0	100	100
13.2	0	0	0.00	100.00	90-100
9.5	78.23	78.23	14.17	85.83	70-88
4.75	86.90	165.13	29.91	70.09	53-71
2.36	121.82	286.95	51.98	48.02	42-58
1.18	20.51	307.46	55.70	44.30	34-48
0.6	74.25	381.71	69.15	30.85	26-38
0.3	64.64	446.35	80.86	19.14	18-28
0.15	31.34	477.69	86.54	13.46	12-20
0.075	28.63	506.32	91.72	8.28	4-10

SIEVE SIZE mm	Trail 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0	100	100
13.2	0	0	0.00	100.00	90-100
9.5	80.25	80.25	14.78	85.22	70-88
4.75	85.90	166.15	30.60	69.40	53-71
2.36	120.81	286.96	52.85	47.15	42-58
1.18	19.51	306.47	56.44	43.56	34-48
0.6	73.27	379.74	69.93	30.07	26-38
0.3	61.62	441.36	81.28	18.72	18-28
0.15	29.31	470.67	86.68	13.32	12-20
0.075	29.62	500.29	92.13	7.87	4-10

SIEVE SIZE mm	Trail 3				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0	100	100
13.2	0	0	0.00	100.00	90-100
9.5	81.30	81.3	14.81	85.19	70-88
4.75	85.95	167.25	30.46	69.54	53-71
2.36	122.92	290.17	52.85	47.15	42-58
1.18	21.41	311.58	56.75	43.25	34-48
0.6	73.34	384.92	70.11	29.89	26-38
0.3	60.55	445.47	81.14	18.86	18-28
0.15	31.31	476.78	86.85	13.15	12-20
0.075	30.62	507.4	92.42	7.58	4-10

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Table-02: Bitumen Content and gradation Test Results 5th Cross Road at random locations
DBM- (GRADE-II)

Landmark/Location	House no # 972	Western Side House no # 964 (Near Water Tank Ward Office)
Description	Trail 1	Trail 2
1.Initial weight of sample (gms) w1	633	638
2. Initial weight of filter paper (gms) w2	5	5
3. final weight of sample after extraction (gms) w3	605	608
4. Final weight of filter paper (gms) w4	6	6
5. Weight of finess (gms) w5=(w4-w2)	1.00	1.00
6. Weight of Bitumen Extracted (gms). w6=w1-w3+w5	29.00	31.00
7. Bitumen content in % (w6/w1)x100	4.58	4.86
8. Average	4.72	

SIEVE SIZE mm	Trail 1				Requirement as per MORTH table 500.10
	Weight Retained, gm	Cumulative Weight Retained	Cumulative %Retained	Cumulative % Passing	
37.5	0	0	0	100	100
26.5	40.90	40.9	6.76	93.24	90 - 100
19	95.62	136.52	22.57	77.43	71 - 95
13.2	82.21	218.73	36.15	63.85	56 - 80
4.75	88.51	307.24	50.78	49.22	38 - 54
2.360	85.23	392.47	64.87	35.13	28 - 42
0.300	98.66	491.13	81.18	18.82	7 - 21
0.075	70.11	561.24	92.77	7.23	2 - 8
SIEVE SIZE mm	Trail 2				Requirement as per MORTH table 500.10
	Weight Retained, gm	Cumulative Weight Retained	Cumulative %Retained	Cumulative% Passing	
37.5	0	0	0	100	100
26.5	40.92	40.92	6.73	93.27	90 - 100
19	79.69	120.61	19.84	80.16	71 - 95
13.2	84.25	204.86	33.69	66.31	56 - 80
4.75	89.52	294.38	48.42	51.58	38 - 54
2.360	92.23	386.61	63.59	36.41	28 - 42
0.300	99.67	486.28	79.98	20.02	7 - 21
0.075	80.12	566.4	93.16	6.84	2 - 8

Table-03: Table-02: Bitumen Content and gradation Test Results 5th Cross Road at random locations
BC- (GRADE-II)

Landmark/Location	House no # 972	Western Side House no # 964 (Near Water Tank Ward Office)
Description	Trial 1	Trail 2
1.Initial weight of sample (gms) w1	555	563
2. Initial weight of filter paper (gms) w2	5	5
3. final weight of sample after extraction (gms) w3	526	533
4. Final weight of filter paper (gms) w4	6	6
5. Weight of finess (gms) w5=(w4-w2)	1.00	1.00
6. Weight of Bitumen Extracted (gms). w6=w1-w3+w5	30.00	31.00
7. Bitumen content in % (w6/w1)x100	5.41	5.51
8.Average	5.46	

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SIEVE SIZE mm	Trail 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0	100	100
13.2	30.65	30.65	5.83	94.17	90-100
9.5	45.34	75.99	14.45	85.55	70-88
4.75	78.65	154.64	29.40	70.60	53-71
2.36	78.23	232.87	44.27	55.73	42-58
1.18	50.51	283.38	53.87	46.13	34-48
0.6	62.27	345.65	65.71	34.29	26-38
0.3	75.65	421.3	80.10	19.90	18-28
0.15	33.25	454.55	86.42	13.58	12-20
0.075	41.15	495.7	94.24	5.76	4-10
SIEVE SIZE mm	Trail 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0	100	100
13.2	35.69	35.69	6.70	93.30	90-100
9.5	53.33	89.02	16.70	83.30	70-88
4.75	75.62	164.64	30.89	69.11	53-71
2.36	72.21	236.85	44.44	55.56	42-58
1.18	58.52	295.37	55.42	44.58	34-48
0.6	55.22	350.59	65.78	34.22	26-38
0.3	75.67	426.26	79.97	20.03	18-28
0.15	35.25	461.51	86.59	13.41	12-20
0.075	40.16	501.67	94.12	5.88	4-10

Conclusion:

The file containing **2nd & Part** bill has been submitted for the above work to QA department on **18.03.2023** requesting for spot inspection. Engineers of QA/QC division have visited the work spot on **01.04.2023.**

During the inspection, engineer in charge of work informed that items found in the bill, have been executed by the contractor & documents were made available for inspection.

PMC team were instructed to assess the Gradation & Bitumen content for DBM (grade-II) & BC (Grade-II) on Asphalted road. The Bitumen Content and Gradation Tests were conducted by PMC in presence of engineer in charge of work.

From the test results furnished by PMC, it is concluded that the results of the samples collected are in accordance with the standards/ specifications mention in the IRC codes. However, the results submitted by the PMC have been reproduced here with for further needful action. The results checked by QA/QC relates only for item tested in the particular location randomly.

Further, QA/QC directs the Engineer in-charge of the work that all materials used for the work shall be inspected, tested and accepted as per the relevant specifications before incorporation in the work. The frequencies and methods of sampling and testing materials, including those required for definite purpose and not covered by MORT&H specifications shall be in accordance to the relevant IRC or BIS or AASHTO/ASTM/BS standards in order of priority.

All materials or work not conforming to the requirements of the specifications shall be considered unacceptable and rejected. The unacceptable materials or works that are rejected shall be immediately removed unless the defects are corrected and approved by the engineer in-charge of work.

The concerned Engineer in charge of the work shall follow the direction issued by Chief Commissioner Letter number dated 01.08.2022 and 14.09.2022 and take necessary action as appropriate in accordance with the law.

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No -

This report by QA/QC is pertaining to the work carried out in **2nd & part bill** only. Therefore, further QA/QC reports shall be obtained for the items of work carried out in future Running Account bill / Final bill.

Safety precautions shall be taken at work spot to prevent any mishap, injuries or loss of life to general public and construction workers according to guidelines laid down in code of practices.

Engineer in charge of work shall obtain requisite approval and Implement traffic management plan prior to commencement of work.

Engineer in charge of work shall display details of work, work code, cost of project, start and completion date, and information of Engineer in charge of work with contact numbers at work spot.

Engineer in charge of work and Agency shall ensure that if any damages or defects occur pertaining to the executed work within the Defect Liability period (DLP), The same shall be rectified immediately on top priority without fail.

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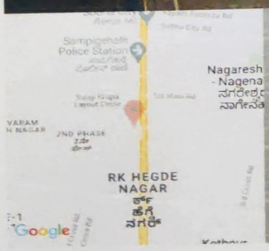
007-23-000001

Location 1: Location 1: 1st Cross Road (W/S Near Water Tank house no-622, W/S Near Elahi Mutton & Chicken Center , W/S Opp Obed Manzil)

	Decimal	DMS
Latitude	13.073004	13°4'22" N
Longitude	77.63321	77°37'59" E

2023-04-01(Sat) 11:40(am)



	Decimal	DMS
Latitude	13.071653	13°4'17" N
Longitude	77.633152	77°37'59" E

2023-04-01(Sat) 11:51(am)

13/4/23 13/4/23 13/4/23

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Location 2: 5th Cross Road (opp to House no # 972 , Western Side House no # 964 Near Water Tank Ward Office)

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